112528

U.S. DEPARTMENT OF COMMERCE
Patent and Trademark Office

SEARCH REQUEST FORM

1/8

Requestor's Name: R Gitomer

Serial Number: 09/942,974

Date: 1/21/04

Phone: 272-0916

Art Unit: 1651

Search Topic:

Please write a detailed statement of search topic. Describe specifically as possible the subject matter to be searched. Define any terms that may have a special meaning. Give examples or relevent citations, authors, keywords, etc., if known. For sequences, please attach a copy of the sequence. You may include a copy of the broadest and/or most relevent claim(s).

STAFF USE ONLY

Date completed: 01-30-04

Searcher: Beverly c 2528

Terminal time: _____

Elapsed time: _____

CPU time: _____

Total time: _____

Number of Searches: _____

Number of Databases: 1

Search Site

_____ STIC

_____ CM-1

_____ Pre-S

Type of Search

_____ N.A. Sequence

_____ A.A. Sequence

_____ Structure

_____ Bibliographic

Vendors

_____ IG

_____ STN

_____ Dialog

_____ APS

_____ Geninfo

_____ SDC

_____ DARC/Questel

_____ Other

PTO-1590 (9-90)

STIC Search Report
Biotech-Chem Library

STIC Database Tracking Number: 112528

To: Ralph J Gitomer **Location:** REM-3D65 **Art Unit:** 1651 Friday, January 30, 2004 **Case Serial Number:** 09/942974	**From:** Beverly Shears **Location:** Remsen Bldg. RM 1A54 **Phone:** 571-272-2528 beverly.shears@uspto.gov

Search Notes

Search and Information Resources Administration

Gitomer
09/942974


```
     FILE 'REGISTRY' ENTERED AT 10:27:43 ON 30 JAN 2004
                E "1,1,1,3,3,3-HEXAFLUORO-2-PROPANOL"/CN 5
L1             1 S E3

     FILE 'HCAPLUS' ENTERED AT 10:28:12 ON 30 JAN 2004
L1             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  "1,1,1,3,3,3-HEXAFLUORO
                  -2-PROPANOL"/CN
L2            19 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (COLI OR ETEC) AND (L1
                  OR (HEXAFLUORO OR HEXA FLUOR)(3W)(PROPANOL OR ISOPROPANOL
                   OR ISOPROPYL OR (I OR ISO)(W)(PROPYL OR PROPANOL OR
                  PR)) OR HEXAFLUOROISOPROPANOL OR HEXAFLUOROISOPROPYL OR
                  2(W)(HYDROXYPROPANE OR HYDROXY PROPANE))
L3             3 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L2 AND (CF OR COLON?
                  FACTOR)
```

```
L1             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  "1,1,1,3,3,3-HEXAFLUORO
                  -2-PROPANOL"/CN
L2            19 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (COLI OR ETEC) AND (L1
                  OR (HEXAFLUORO OR HEXA FLUOR)(3W)(PROPANOL OR ISOPROPANOL
                   OR ISOPROPYL OR (I OR ISO)(W)(PROPYL OR PROPANOL OR
                  PR)) OR HEXAFLUOROISOPROPANOL OR HEXAFLUOROISOPROPYL OR
                  2(W)(HYDROXYPROPANE OR HYDROXY PROPANE))
L4             4 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L2 AND (MS(S)(SPECTRUM
                  OR SPECTROMET?) OR MASS(W)(SPECTROMET? OR SPECTRUM))
```

```
L1             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  "1,1,1,3,3,3-HEXAFLUORO
                  -2-PROPANOL"/CN
L2            19 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (COLI OR ETEC) AND (L1
                  OR (HEXAFLUORO OR HEXA FLUOR)(3W)(PROPANOL OR ISOPROPANOL
                   OR ISOPROPYL OR (I OR ISO)(W)(PROPYL OR PROPANOL OR
                  PR)) OR HEXAFLUOROISOPROPANOL OR HEXAFLUOROISOPROPYL OR
                  2(W)(HYDROXYPROPANE OR HYDROXY PROPANE))
L5             1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L2 AND CENTRIF?

L6             4 L3 OR L4 OR L5

L6   ANSWER 1 OF 4  HCAPLUS  COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER:         2002:595418  HCAPLUS
DOCUMENT NUMBER:          137:137256
TITLE:                    Mass spectrometry of
                          colonization factors
INVENTOR(S):              Cassels, Frederick J.; Pannell, Lewis K.
PATENT ASSIGNEE(S):       USA
SOURCE:                   U.S. Pat. Appl. Publ., 6 pp., Cont.-in-part of
                          U. S. Ser. No. 580,385, abandoned.
                          CODEN: USXXCO
DOCUMENT TYPE:            Patent
LANGUAGE:                 English
FAMILY ACC. NUM. COUNT:   2
PATENT INFORMATION:
```

Searcher : Shears 571-272-2528

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002106717	A1	20020808	US 2001-942974	20010831

PRIORITY APPLN. INFO.:
US 1997-45511P P 19970502
US 1998-70802 B2 19980501
US 2000-580385 B2 20000526

AB Electrospray **mass spectrometry** has been shown to be useful and extremely accurate (about 1 mass unit/10,000 MW) to a total mass of 30-40 kDa. Data clearly shows that use of electrospray **mass spectrometry** and protein sequencing as applied to the identification of **ETEC** **CF**.

IT **920-66-1**, 1,1,1,3,3,3-**Hexafluoro**-2-**propanol**
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(**mass spectrometry** of **colonization** **factors**)

L6 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:113620 HCAPLUS
DOCUMENT NUMBER: 136:259517
TITLE: Identification and characterization of hydrophobic Escherichia **coli** virulence proteins by liquid chromatography-electrospray ionization **mass spectrometry**
AUTHOR(S): Hess, Sonja; Cassels, Frederick J.; Pannell, Lewis K.
CORPORATE SOURCE: Structural Mass Spectrometry Facility, Laboratory of Bioorganic Chemistry, National Institute of Diabetes, and Digestive and Kidney Disease, National Institutes of Health, Bethesda, MD, 20892-0805, USA
SOURCE: Analytical Biochemistry (2002), 302(1), 123-130
CODEN: ANBCA2; ISSN: 0003-2697
PUBLISHER: Academic Press
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Virulence of enterotoxicogenic Escherichia **coli** is mediated by rodlike, rigid, highly hydrophobic proteins designated fimbriae or **colonization factors** (**CFs**). More than 20 different **colonization factors** have been described so far using predominantly immunol. and genetic methods. To characterize these hydrophobic proteins by liquid chromatog.-**mass spectrometry** (LC-**MS**), different methodologies were explored. A novel LC-MS method was developed using **hexafluoroisopropanol** to maintain the hydrophobic proteins in solution In addition, these proteins were digested with cyanogen bromide and peptide mapping by LC-MS was established. This technique was particularly useful in identification of closely related **CFs**. Both LC-MS and peptide mapping methodologies were found to be useful in characterizing highly hydrophobic **CFs** of E. **coli**. To search for mol. wts. of mature proteins in the National Center for Biotechnol. Information (NCBI) database, a new feature was developed and its applicability tested. The identification of a class of pathogenic virulence proteins, either intact or digested, is possible with mol. weight database searching. (c) 2002 Academic Press.

Searcher : Shears 571-272-2528

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1998:742262 HCAPLUS
DOCUMENT NUMBER: 130:2002
TITLE: **Mass spectrometry** of **colonization factors**
INVENTOR(S): Cassels, Frederick J.; Pannel, Lewis K.
PATENT ASSIGNEE(S): United States Dept. of the Army, USA
SOURCE: PCT Int. Appl., 19 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9850068	A1	19981112	WO 1998-US8768	19980501
W: CA, JP				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 981368	A1	20000301	EP 1998-920064	19980501
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, SE, PT, IE, FI				
JP 2002500758	T2	20020108	JP 1998-548219	19980501

PRIORITY APPLN. INFO.: US 1997-45511P P 19970502
WO 1998-US8768 W 19980501

AB This invention relates to the use of **mass spectrometry** for identifying specific **colonization factors**, such as fimbriae, fibrillae or pili, in a sample of Escherichia **coli**. The sample is dissolved in 1,1,1,3,3,3-**hexafluoro**-2-**propanol** prior to **mass spectrometry** anal. This method is useful for tracking infections by differentially identifying the **colonization factors** produced by specific organisms.

IT **920-66-1**, 1,1,1,3,3,3-**Hexafluoro**-2-**propanol**
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(**mass spectrometry** of **colonization factors** of Escherichia **coli**)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1993:576924 HCAPLUS
DOCUMENT NUMBER: 119:176924
TITLE: Direct observation of UV-crosslinked protein-nucleic acid complexes by matrix-assisted laser desorption ionization **mass spectrometry**
AUTHOR(S): Jensen, Ole N.; Barofsky, Douglas F.; Young, Mark C.; von Hippel, Peter H.; Swenson, Stephen; Seifried, Steven E.

Searcher : Shears 571-272-2528

CORPORATE SOURCE: Dep. Biochem. Biophys., Oregon State Univ., Corvallis, OR, 97331-7305, USA
SOURCE: Rapid Communications in Mass Spectrometry (1993), 7(6), 496-501
CODEN: RCMSEF; ISSN: 0951-4198
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Interactions between proteins and nucleic acids are important in the fundamental cellular processes that drive replication, recombination, dynamic alteration and repair of DNA, transcription and processing of RNA, synthesis of proteins, and regulation of enzyme activities. As part of an effort to develop a general, sensitive **mass spectrometric** strategy for the characterization of protein-nucleic acid interactions, the authors have used matrix-assisted laser desorption-ionization (MALDI) time-of-flight **mass spectrometry** to analyze protein-nucleic acid complexes that have been covalently crosslinked by UV light. In general, the application of MALDI **mass spectrometric** techniques to studies of UV-induced crosslinking of nucleoprotein complexes is demonstrated to be feasible. Specifically, MALDI mass anal. was used to determine the mol. wts. of the phage T4 gene 32 protein (gp32) crosslinked to the oligonucleotide (dT)20, and the Escherichia **coli** transcription termination factor rho, photoaffinity labeled with 4-thio-uridine-diphosphate (4sUDP). The covalent gp32:(dT)20 complex is readily detected at a concentration of 1-2 μM in 1 μL of an unpurified solution of reactants that has been exposed to a single, 266 nm UV laser pulse. **Mass spectrometric** mol. weight detns. of the covalent rho:4sUDP complex add directness and specificity to the ATPase inactivation assay normally used to monitor the formation of 4sUDP photoaffinity labeled rho. It is found that successful MALDI **mass spectrometry** of protein-nucleic acid complexes is as critically dependent on the choice of solvents and additives as it is on the primary matrix compound

IT **920-66-1**, 1,1,1,3,3,3-**Hexafluoroisopropanol**
RL: ANST (Analytical study)
(in matrix-assisted laser desorption ionization **mass spectrometry** of UV-crosslinked protein-nucleic acid complexes)

(FILE 'MEDLINE, BIOSIS, EMBASE, WPIDS, CONFSCI, SCISEARCH, JICST-EPLUS, JAPIO' ENTERED AT 10:34:23 ON 30 JAN 2004)
L7 4 S L6
L8 2 DUP REM L7 (2 DUPLICATES REMOVED)

L8 ANSWER 1 OF 2 MEDLINE on STN DUPLICATE 1
ACCESSION NUMBER: 2002114414 MEDLINE
DOCUMENT NUMBER: 21835447 PubMed ID: 11846385
TITLE: Identification and characterization of hydrophobic Escherichia **coli** virulence proteins by liquid chromatography-electrospray ionization **mass spectrometry**.
AUTHOR: Hess Sonja; Cassels Frederick J; Pannell Lewis K
CORPORATE SOURCE: Structural Mass Spectrometry Facility, Laboratory of Bioorganic Chemistry, National Institute of Diabetes, and Digestive and Kidney Diseases, National Institutes of Health, Building 8, Room B2A21,

Searcher : Shears 571-272-2528

Bethesda, Maryland 20892-0805, USA..
Sonja_Hess@nih.gov
SOURCE: ANALYTICAL BIOCHEMISTRY, (2002 Mar 1) 302 (1) 123-30.
Journal code: 0370535. ISSN: 0003-2697.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200206
ENTRY DATE: Entered STN: 20020216
Last Updated on STN: 20020618
Entered Medline: 20020617

AB Virulence of enterotoxicogenic Escherichia **coli** is mediated by rodlike, rigid, highly hydrophobic proteins designated fimbriae or **colonization factors** (**CFs**). More than 20 different **colonization factors** have been described so far using predominantly immunological and genetic methods. To characterize these hydrophobic proteins by liquid chromatography-**mass spectrometry** (LC-**MS**), different methodologies were explored. A novel LC-MS method was developed using **hexafluoroisopropanol** to maintain the hydrophobic proteins in solution. In addition, these proteins were digested with cyanogen bromide and peptide mapping by LC-MS was established. This technique was particularly useful in identification of closely related **CFs**. Both LC-MS and peptide mapping methodologies were found to be useful in characterizing highly hydrophobic **CFs** of E. **coli**. To search for molecular weights of mature proteins in the National Center for Biotechnology Information (NCBI) database, a new feature was developed and its applicability tested. The identification of a class of pathogenic virulence proteins, either intact or digested, is possible with molecular weight database searching.

L8 ANSWER 2 OF 2 WPIDS COPYRIGHT 2004 THOMSON DERWENT on STN
ACCESSION NUMBER: 1999-045154 [04] WPIDS
DOC. NO. CPI: C1999-014063
TITLE: Process for identifying bacterial **colonising factors** - useful for **mass spectrometry** and identifying factors required by Escherichia **coli**.
DERWENT CLASS: B04 D16 J04
INVENTOR(S): CASSELS, F J; PANNEL, L K; PANNELL, L K
PATENT ASSIGNEE(S): (USSA) US ARMY MEDICAL RES & MATERIAL COMMAND; (USSA) US DEPT OF THE ARMY; (CASS-I) CASSELS F J; (PANN-I) PANNELL L K
COUNTRY COUNT: 22
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 9850068	A1	19981112	(199904)*	EN	19
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE					
W: CA JP					
EP 981368	A1	20000301	(200016)	EN	
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI NL PT SE					
JP 2002500758	W	20020108	(200206)		18
US 2002106717	A1	20020808	(200254)		

Searcher : Shears 571-272-2528

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
WO 9850068	A1		WO 1998-US8768	19980501
EP 981368	A1		EP 1998-920064	19980501
			WO 1998-US8768	19980501
JP 2002500758	W		JP 1998-548219	19980501
			WO 1998-US8768	19980501
US 2002106717	A1	Provisional	US 1997-45511P	19970502
		CIP of	US 1998-70802	19980501
		CIP of	US 2000-580385	20000526
			US 2001-942974	20010831

FILING DETAILS:

PATENT NO	KIND		PATENT NO
EP 981368	A1	Based on	WO 9850068
JP 2002500758	W	Based on	WO 9850068

PRIORITY APPLN. INFO: US 1997-45511P 19970502; US 1998-70802 19980501; US 2000-580385 20000526; US 2001-942974 20010831

AN 1999-045154 [04] WPIDS

AB WO 9850068 A UPAB: 19990127

A process for identifying bacterial **colonisation factors** in a culture comprises: (a) suspending bacteria in an isotonic solution, followed by heating for 15-30 minutes to release **colonisation factors**; (b) **centrifuging** the product of (a) and discarding the precipitate; (c) adding ammonium sulphate to the supernatant to obtain a 15-50% concentration saturation of ammonium sulphate; (d) **centrifuging** the product of (c); (e) dissolving the pellet in water and dialysing to remove ammonium sulphate and other small molecules; (f) drying the product of (e); (g) solubilising the product of (f); (h) subjecting the product of (g) to **mass spectrometry** to determine mass, and (i) comparing the results obtained in (h) with mass of known **colonisation factors**. Also claimed are: (1) a method for solubilising **colonisation factor** comprising: (i) dissolving the **colonisation factor** in 1,1,1,3,3,3-**hexafluoro-2-propanol** (HFP), and (ii) adding an acidified aqueous solution which has been acidified with a volatile acid to the composition obtained from (i), and (2) a composition of matter consisting of at least one partially purified bacterial **colonisation factor** solubilised in HFP.

USE - The process is used to identify **colonisation factors** of Escherichia **coli**.

ADVANTAGE - The process has an increase efficiency and reliability than prior art methods.

Dwg.0/0

(FILE 'HCAPLUS' ENTERED AT 10:41:45 ON 30 JAN 2004)

L9 3 SEA FILE=HCAPLUS ABB=ON PLU=ON (COLI OR ETEC) AND HFP

L10 0 SEA FILE=HCAPLUS ABB=ON PLU=ON L9 AND (CF OR COLON? FACTOR OR CENTRIF? OR MS(S)(SPECTRUM OR SPECTROMET?) OR

MASS(W)(SPECTROMET? OR SPECTRUM))

(FILE 'MEDLINE, BIOSIS, EMBASE, WPIDS, CONFSCI, SCISEARCH, JICST-EPLUS, JAPIO' ENTERED AT 10:42:41 ON 30 JAN 2004)

```
L11            1 S L10
L12            0 S L11 NOT L7
```

(FILE 'MEDLINE' ENTERED AT 10:43:38 ON 30 JAN 2004)

```
L13        31603 SEA FILE=MEDLINE ABB=ON  PLU=ON  "SPECTRUM ANALYSIS,
                 MASS"/CT
L14       156417 SEA FILE=MEDLINE ABB=ON  PLU=ON  "ESCHERICHIA COLI"/CT
L15          908 SEA FILE=MEDLINE ABB=ON  PLU=ON  L13 AND L14
L16         9056 SEA FILE=MEDLINE ABB=ON  PLU=ON  CENTRIFUGATION/CT
L17            0 SEA FILE=MEDLINE ABB=ON  PLU=ON  L15 AND L16
```

```
L13        31603 SEA FILE=MEDLINE ABB=ON  PLU=ON  "SPECTRUM ANALYSIS,
                 MASS"/CT
L14       156417 SEA FILE=MEDLINE ABB=ON  PLU=ON  "ESCHERICHIA COLI"/CT
L15          908 SEA FILE=MEDLINE ABB=ON  PLU=ON  L13 AND L14
L18         4263 SEA FILE=MEDLINE ABB=ON  PLU=ON  "AMMONIUM SULFATE"/CT
L19            0 SEA FILE=MEDLINE ABB=ON  PLU=ON  L15 AND L18
```

```
L13        31603 SEA FILE=MEDLINE ABB=ON  PLU=ON  "SPECTRUM ANALYSIS,
                 MASS"/CT
L14       156417 SEA FILE=MEDLINE ABB=ON  PLU=ON  "ESCHERICHIA COLI"/CT
L15          908 SEA FILE=MEDLINE ABB=ON  PLU=ON  L13 AND L14
L20          577 SEA FILE=MEDLINE ABB=ON  PLU=ON  PROPANOLS/CT
L21            0 SEA FILE=MEDLINE ABB=ON  PLU=ON  L15 AND L20
```

FILE 'HOME' ENTERED AT 10:45:09 ON 30 JAN 2004

Searcher : Shears 571-272-2528